AMENDMENTS TO THE CLAIMS:

The following Listing of Claims replaces all previous claims and listings of claims in the application:

LISTING OF CLAIMS:

1-11. (Canceled)

12. (Currently Amended) A system for tracking multiple targets using distributed linear sensor arrays, comprising:

a plurality of arrays of sensors for receiving signals from a target;

a receiver for receiving signals received by the plurality of sensor arrays;

an analog/digital converter for converting the signals received from the sensor arrays to a digital format, if signals are received in an analog format;

a digital storage device for storing the digitized data from the sensor arrays; and

a computer system for retrieving the stored digitized data from the plurality of sensor arrays and processing the data through the use of a composite Hough transform to determine a track of the target.

13. (Currently Amended) A system for tracking multiple targets using distributed linear sensor arrays, comprising:

one or more arrays of sensors for receiving signals from a target;

means for receiving signals received by the plurality of sensor arrays;

means for converting the signals received from the sensor arrays to a digital format, if required;

means for storing the digitized data from the sensor arrays; and

a computer system for retrieving the stored digitized data from the sensor arrays and

processing the data through the use of a composite Hough transform to determine a track of

the target.

14. (Previously Presented) A system, as in Claim 13, wherein the sensors for receiving

signals from a target are acoustic sensors.

15. (Previously Presented) A system, as in Claim 13, wherein the sensors for receiving

signals from a target are electromagnetic sensors.

16. (Previously Presented) A system, as in Claim 13, wherein the sensors for receiving

signals from a target are optic sensors.

17. (Previously Presented) A system, as in Claim 13, wherein the receiver is an acoustic

receiver.

18. (Previously Presented) A system, as in Claim 13, wherein the receiver is an sonar

signal receiver.

19.   (Previously Presented) A system, as in Claim 13, wherein the means for converting

the signals received from the sensor arrays to a digital format, if required, is an analog-to-

digital converter.

20.   (Previously Presented) A system, as in Claim 13, wherein the means for storing the

digitized data from the sensor arrays is a computer.

21.   (Currently Amended) A computer system for processing digitized data to determine

the track of a target comprising[[;]]:

        a data storage device;

        a computer for retrieving data from the data storage device, computing a hypothesis

reference track relative to a primary sensor array[[;]], and for computing a ~~hypthesis~~

<u>hypothesis</u> reference track relative to ~~the~~ <u>a</u> second sensor array;

                said computer calculating an associated delay curve in a primary correlogram

for the primary sensor array;

                said computer calculating an associated delay curve in a secondary

correlogram for a secondary array;

                said computer accumulating data for the reference track by simultaneously

integrating a series of pixel values along the appropriate delay curve in the primary and

secondary correlograms;

                said computer storing the accumulated pixel values in composite Hough

space[[;]] and thresholding the accumulated pixel values to detect the track.

22.   (Currently Amended) A computer system for processing digitized data to determine

the track of a target comprising[[;]]:

a data storage device; and

a computer for retrieving data from the data storage device and

hypothesizing a track with track parameters values (θ_1, v, D, t_{01});

generating a corresponding template delay curve in a primary correlogram;

performing integration along the template delay curve in the primary

correlogram;

computing a delay curve parameter (θ_2, v/ D, t_{02}) for a secondary array based

on geometric constraints;

generating a corresponding template delay curve in a secondary correlogram

based   on the delay curve parameter (θ_2, v/ D, t_{02});

performing integration along the template delay curve in the secondary

correlogram and storing integrated values;

computing a delay curve parameter (θ_{2m}, v/D_{2m}, t_{02m}) for the secondary array

based on geometric constraints;

generating a corresponding template delay curve in the secondary

correlogram;

combining the integrated values and storing it in the corresponding composite

Hough space; and

thresholding the accumulated pixel values to detect the track.

23.   (New) A method of processing data from at least two sensor arrays to determine the track of a target comprising:

computing a hypothesis reference track relative to a primary sensor array;

computing a hypothesis reference track relative to a second sensor array;

calculating an associated delay curve in a primary correlogram for the primary sensor array;

calculating an associated delay curve in a secondary correlogram for a secondary array;

accumulating data for the reference track by integrating a series of pixel values along the appropriate delay curve in the primary and secondary correlograms;

storing the accumulated pixel values in composite Hough space; and

thresholding the accumulated pixel values to detect the track.